



U.S. Department of Energy
Energy Efficiency and Renewable Energy

Accelerating Technology Deployment Breakout Group Report



***2006 ITP Corporate Peer Review
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Arlington, Virginia***

Commercialization Valley of Death



Challenges

- Inadequate technology development e.g., no demonstration, lack of industry understand
- Need to retire equipment early—take functioning equipment out of service
- Don't skip steps –keep key stakeholders involved
- Consider the need for profit for all companies involved—technology must support this; must have commercial impact in 3 years
- Selling value of technology requires demonstrations—just when risks decline funding goes down, need to maintain budget
- Need in plant incentives to adopt technology
- Technology development is not connected to market needs
- Education in the marketplace
- Different cultures involved in development—technology, financing, users
- Lack of application development; start in niche market and then demonstrate in multiple niche markets
- Overcome overly optimistic ideas about where a technology can go—need realistic expectations and anticipate challenges
- Unexpected issues—find problems at the end of the funding cycle
- IP restricts who will develop
- Regulatory uncertainty 5 years from now
- Bringing competitive advantage to the user drives investment
- Need process to force R&D to consider the operational risks—add to stage-gate step e.g., scale up
- Solution provider need to show the business case and create economic incentives so a user will invest
- Communication is lacking
- Lack of selling technologies to other industries e.g., cross-cutting opportunities
- Lack of user resources e.g., software
- Over engineered technology
- Lack of funding
- Lack of collaboration, coordination, communication among industry
- Too much focus on technical success; needs to be economically attractive
- Exposing technologies to the right audience
- Price of energy impacts technology attractiveness—risk
- Financial industry treats energy-saving technology investment differently
- Too much focus on energy—need to connect with other issues
- Negative cash flow
- 6.1-6.2 only—still requires significant funding
- Lack of business plans
- Takes time to develop; innovations can be used in multiple applications
- Lack of right project team participants
- Knowledge-based projects that are not in software get lost; also difficult to gain meaning from just reading
- Contractual vehicles e.g., demonstration insurance

Challenges

- Lack of adequate technology validation e.g., demonstrations
- Inadequate financial resources to overcome valley of death
- Disconnect between *business issues* and technology development
- Disconnect between *market needs* and technology development
- Lack of business case for technology adoption
- IP, regulatory uncertainty, price uncertainty
- Teams do not have all the right skills
- Inadequate business plans
- Industry awareness

Proposed Solutions/Strategies

- Increase market success e.g., establish business case evaluation plan in stage-gate
 - Incorporate commercialization realities into stage-gate
 - Communicate understanding of sales and marketing to the development team
- Industry monitoring from conception to commercialization – bench of retired CEOs as a coaching program to address concerns
- Lack of incentives – establish a referral clearinghouse
- Funding to solve problems – restructure program so successful projects are assisted through commercialization/Inadequate resources – extend resources to maximize successes
- Promote products ready for commercialization – hire marketing firm (not just publish factsheets)

Proposed Solutions/Strategies

- Understand customer needs – rotate industry representatives into ITP management
- Communicate reality of high energy price future
- Create business case as part of solicitation – is it real, can we win, how to mitigate risk, is it worth it...prove benefits to users, involve management
 - Regulations may restrict what is asked for in solicitations
- Provide temporary permitting for technology testing/demonstrations
- Expand role of IAC to include providing benchmarking and new technology information
- Data collection on failures and successes – why have things failed, is there a number one reason?
- Insufficient communication to right audience e.g., help with technology transfer, end-users

Action Plan

Next Steps	Roles/Responsibilities
Stage-gate updates—business plans, commercialization risks, etc.	ITP
Equipment supplier/end-user involvement concept to demonstration	Principal investigator, ITP, trade associations,
Provide funding from concept to demonstrations/commercialization	ITP, principal investigators, company involvement
Communication of project results – actively sell value	Technical associations, ITP, universities